DELIVERABLES – 05/03/04

SCHEMATIC DESIGN 3

ENVIRONMENTAL ASSESSMENT OR ENVIRONMENTAL IMPACT STATEMENT ACTIVITIES 3
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SCHEMATIC DESIGN

Schematic design documents include design alternatives, Value Analysis, and Final Schematic Design/DAB Submittal with class B estimate.

Environmental Assessment or Environmental Impact Statement Activities

- Public and Agency scoping
- Data Collection
- Agency Consultations and other required activities

Schematic Design Alternatives

- Drawings, which may be AutoCAD or free-hand, may include:
  - Site plan
  - Grading plan
  - Demolition plan
  - Site layout plan
  - Site details
  - Planting plan
  - Floor plans
  - Typical sections
  - Typical elevations
  - Utility plan
  - Process diagrams
  - Character sketches

- Presentation Options
  - Physical Study Model
  - Computer-generated three dimensional Model
  - Film or digital images
  - Power Point Presentation
  - Color hand-drawn perspective and oblique drawings

Schematic Design Preferred Alternative

The schematic design preferred alternative documents include building and site plans, elevations, and sections in sufficient detail to illustrate the functional and programmatic requirements of the preferred alternative from the Value Analysis. The preferred alternative is fully developed to adequately define the buildings, site development and systems including structural, mechanical, electrical, water and wastewater analyses; energy analysis; and materials analysis.

- Final Schematic Design documents shall include the following:
  - Building and site plans
  - Elevations and sections
  - Basis of Design Report (BDR):
    - Narrative and drawings that capture all aspects of the project including descriptions of engineering systems, building, site and utility design; structural, mechanical, electrical, water and wastewater analyses; energy analysis; and materials analysis. The report includes:
      - Project Program
      - Civil Engineering
        - Storm Water Management
        - Utility Corridor
        - Roadway and Parking
      - Landscape Architecture
        - Functional Analysis of Project program
        - Roadway and parking siting and analysis
        - Vegetation and Planting
        - Materials Analysis
        - Character Defining Features listing (cultural landscape)
        - Statement of Historic Significance (cultural landscape)
      - Water/Wastewater Systems
        - Code analysis and verification
        - Descriptions of water/wastewater systems and alternatives
        - Design flow calculations
        - Fire flow requirements
        - Results of soils testing, e.g. percolation test results
        - Results of sampling and testing of wastewater, etc.
        - Utility corridor or routing
        - Calculations for utility system sizing
        - Modeling

- Special studies, e.g. hazmat

Architecture and Preservation Architecture

- Code Analysis
- Functional Analysis of Project program
- Materials Analysis (Interior and exterior materials and finishes)
- Character Defining Features listing (historic structures)
- Statement of Historic Significance (historic structures)

Structural Systems

- Code and loading requirements
- Foundation system
- Roof and floor framing systems
- Lateral load-resisting elements

Mechanical Systems

- Descriptions of alternative mechanical systems
- Summary of energy analysis calculations
- Mechanical code review, listing special code requirements
- Adequacy of site utilities for mechanical systems, based on actual measurements of flow and pressure available or based on information from local utility companies
- Justifications for and descriptions of preferred alternative mechanical systems

Electrical Systems

- Descriptions of electrical systems and alternatives
- Load summary and calculations
- Adequacy of site utilities for electrical systems based on information from local utility companies; verification of phase and voltage available
- Electrical code review, listing special code requirements
- Discussion of telecommunication, fire, and intrusion

Energy Analysis

- Comparison of energy source alternatives, including renewable energy
- Life cycle costing for value analysis of mechanical system alternatives
- Preliminary mechanical system sizing
- Energy analysis for US Green Building Council's (USGBC) LEED certification
- Energy budgeting for proposed facilities

Class B Construction Cost Estimate

Class “B” estimate consists of a combination of lump sum (when quantities are known) items and unit price items when quantities are unknown. Estimate is based on:

- Basic layout of site and building plans and sections in sufficient detail to assist in quantity take-off. Plans and

sections can be later used in the preparation of design development drawings.
    - Schematic mechanical and electrical systems design (may be in the form of written analysis, based upon available information)
    - Preferred alternative drawings
    - Outline specifications, including cut sheets, of proposed equipment, fixtures or specialty items which may significantly influence estimate
    - Cost estimate shall be prepared utilizing samples.
- Final Schematic Design documents may include the following:
  Renderings and illustrative plans
  Color hand-drawn perspective and oblique drawings
  Computer-generated three dimensional model
  Physical study model
  Photographs or digital images
  Microsoft PowerPoint presentation